

AIRNow-International

The future of the United States real-time air quality reporting and forecasting program and GEOSS participation



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AIRNow-International

Outline

- **What is AIRNow-International?**
 - Software
 - A Community...
 - Shanghai China pilot
- **System Capabilities**
- **Program Goals**
 - Current Status
 - Promoting the sharing air quality data globally

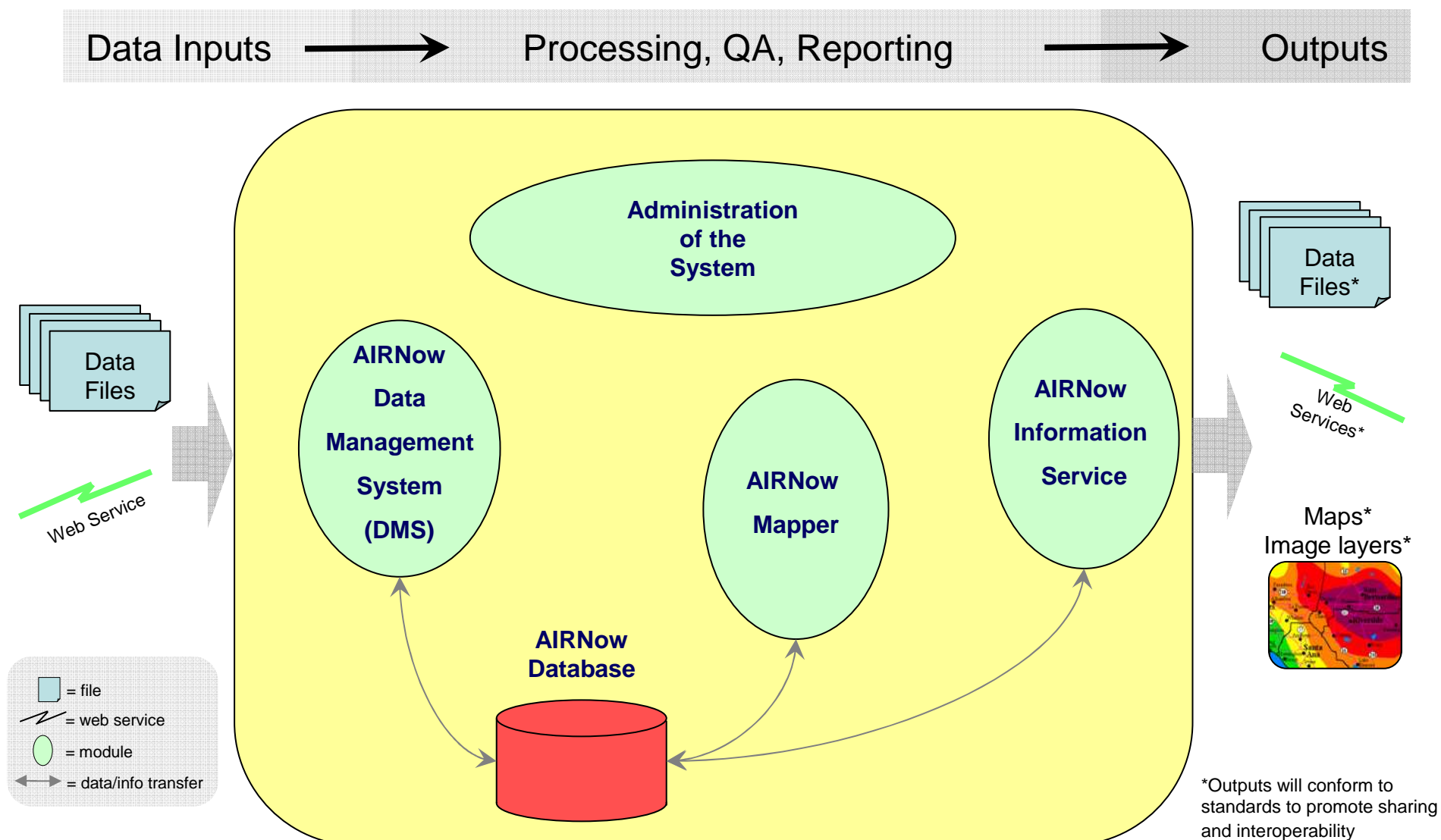
What is AIRNow-International?

- **New AIRNow Software package**
 - Complete redesign of the U.S. AIRNow system
 - AIRNow is the national real-time reporting and forecasting system for air quality for the States
 - Collect, process, map, and distribute real-time environmental information (not just air)
 - Microsoft SQL Server platform
 - New GIS-based mapping software (ESRI)
 - Geospatial, World-wide mapping capability
 - Map other datasets (e.g., multiple pollutants, aq model outputs)
 - Data fusion possible
 - Data and Information Management Systems

What is AIRNow-International?

- **Services approach...Web 2.0 friendly**
 - Readily distribute data
 - Greater flexibility (sites, geographic extent, parameters, date/time, units, duration, and aggregation)
 - Outputs: CSV, KML, NetCDF, GRIB2, Shapefiles, CAP
- **Built with open components/standards**
 - Easily adopted by agencies/organizations
 - Multiple language support
 - Portable, flexible, and sustainable
 - Opportunity for leveraging tools and expertise

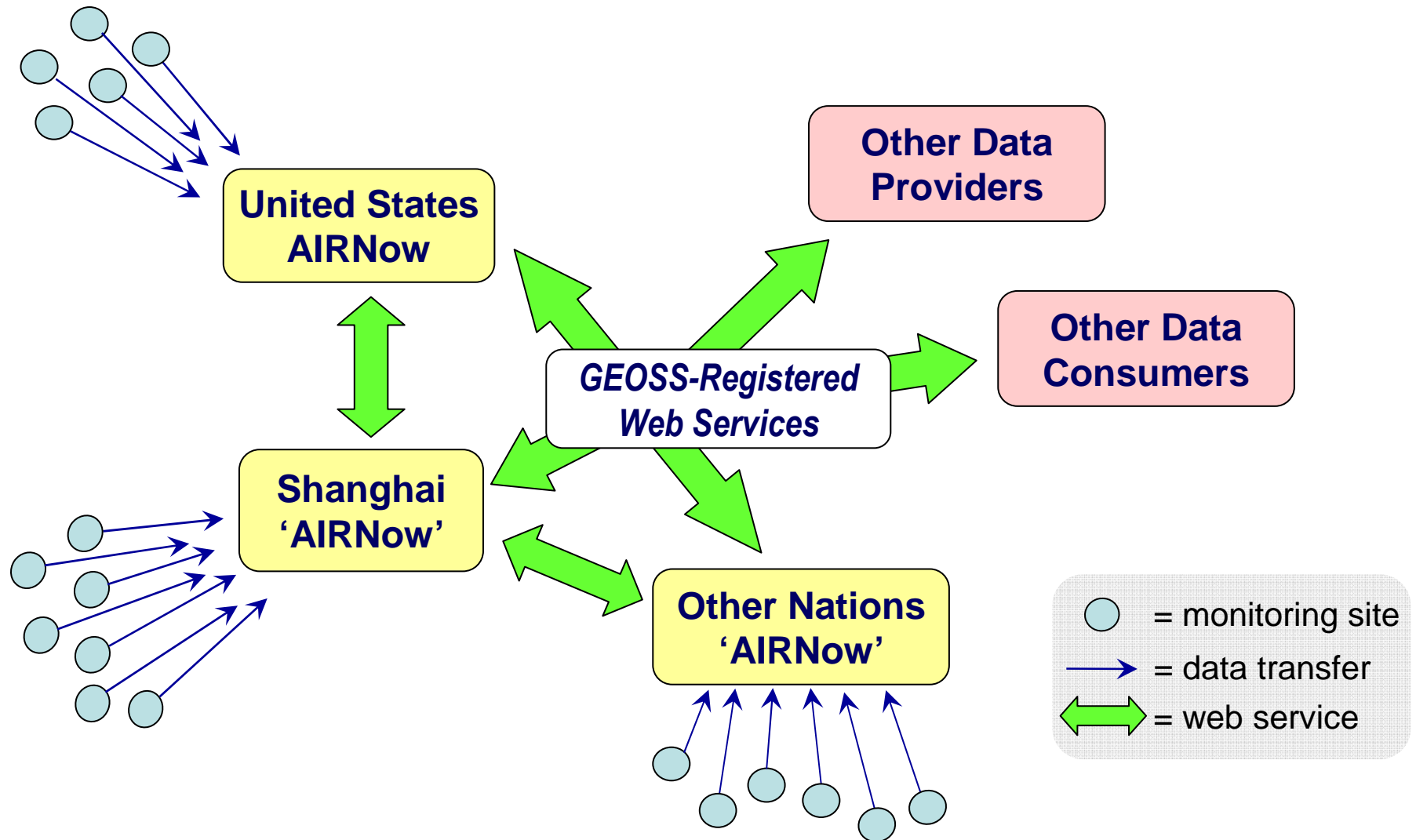
AIRNow-International System (Conceptual and Functional Design & Data Flow)



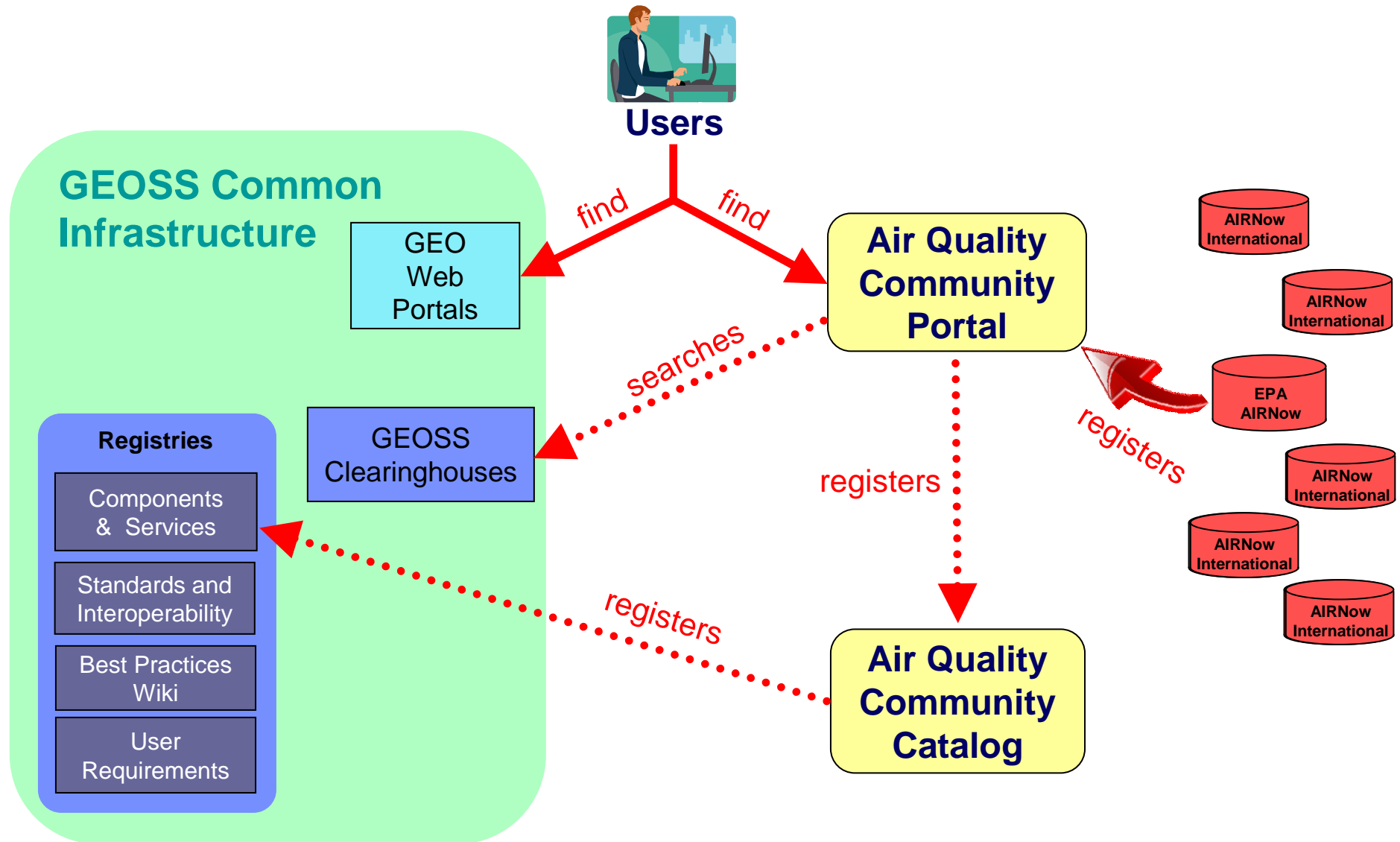
What is AIRNow-International?

- **Part of a growing 'Community'**
 - U.S. AIRNow has always been more than software...
 - Regional cooperation and daily interaction with stakeholders
 - Annual conferences
 - Initial pilot of AIRNow-International: ***Shanghai, China***
 - 2010 World Expo
 - help Shanghai visualize, forecast and report air quality conditions
 - **International collaboration and knowledge exchange**
 - Promote local, national and international data exchange
 - Agency to Agency
 - Agency to the Public
 - GEOSS
 - Promote data standardization via GEOSS
- ➡ **The goal of improving data exchange and access is achieved by building this community**

AIRNow-International Concept

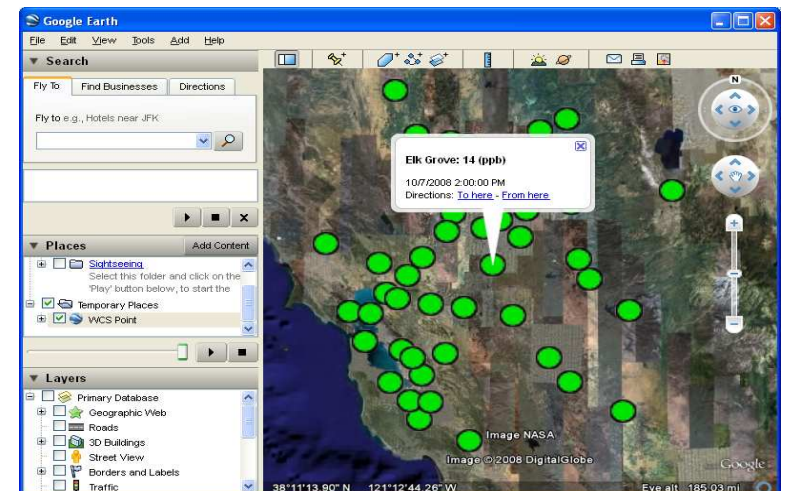
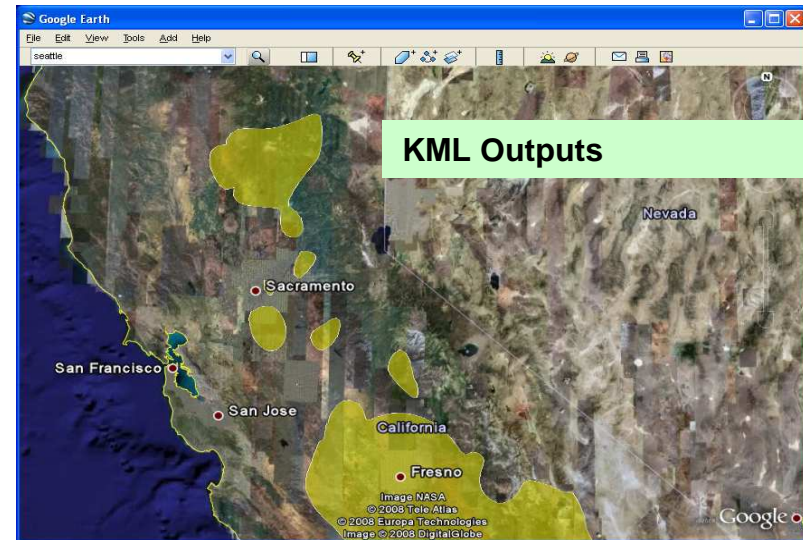


AIRNow GEOSS Participation



AIRNow-International Capabilities

- **Multiple file outputs**
 - Comma Separated Value (CSV)
 - NetCDF and GRIB2
 - Available via web service or FTP
 - New AQCSV format
 - Standardize air quality data exchange?
- **RSS and CAP feeds**
- **Web Services**
 - Web Mapping Service
 - Web Feature Service
 - Web Coverage Service
- **KML files (Google Earth) and Shapefiles**



Web Coverage Service – Point: KML Output

RSS AIRNow Gateway Feeds

AIRNow Gateway - Atom and CAP Feeds - Windows Internet Explorer

http://staging.sonomatech.com/feeds_airnowgateway_org/

File Edit View Favorites Tools Help

AIRNow Gateway - Atom and CAP Feeds

AIRNow GATEWAY

[Home](#) | [Data Feeds](#) | [Login](#)

AIRNow Feeds

Subscribe to air quality forecast and Action Day notifications by city. Daily forecasts are available in RSS format. Common Alerting Protocol (CAP) feeds are available in both CAP XML format and as an Atom feed.

Forecast city selection

Please pick a State:

City	RSS		CAP	
	Forecast	Action Day	Forecast	Action Day
Ann Arbor				
Benton Harbor				
Detroit				
Eastern U.P.				
Flint				
Grand Rapids				
Houghton Lake				
Kalamazoo				
Lansing				
Ludington				
Saginaw				
Traverse City				

View Forecast RSS feed

http://staging.sonomatech.com/feeds_airnowgateway_org/rss/forecast/48.xml

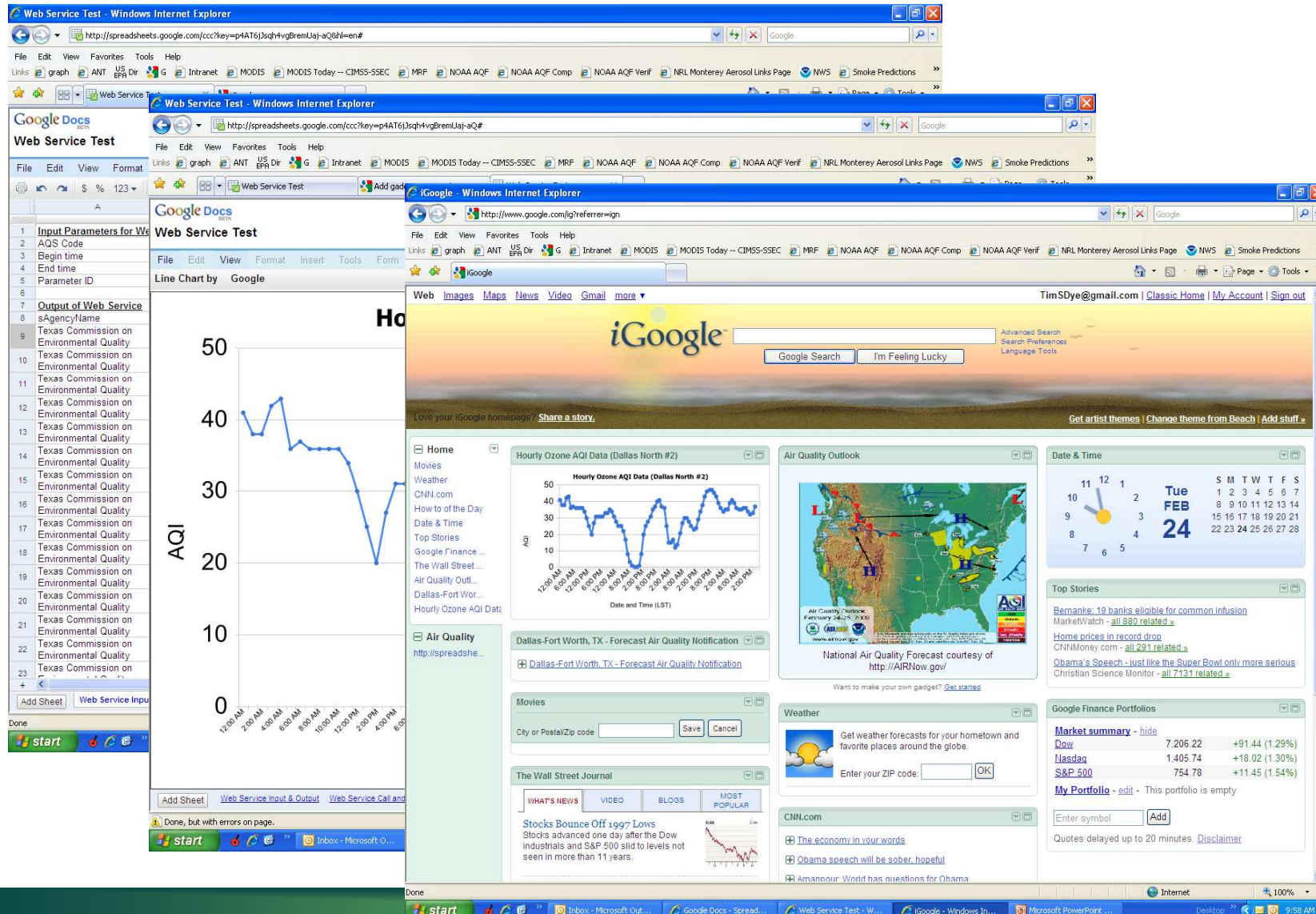
Internet 100%

[RSS Feeds](#)

AIRNow-International Web Services

- **Web Services will be URL based initially (RESTful)**
 - Web Mapping Service
 - Return map images with desired data displayed (contour map)
 - Web Feature Service
 - Returns geographic map features (not map images)
 - Shapefiles or GML
 - Web Coverage Service
 - Returns data for points or a gridded coverage area
 - CSV, KML, NetCDF, or GRIB2
- **How can the air quality community use them?**
 - A data feed for internal applications and/or web sites
 - A data feed for GEOSS via the Air Quality Portal/Catalogue
 - Excel spreadsheets
 - Google docs
 - Visualization tools

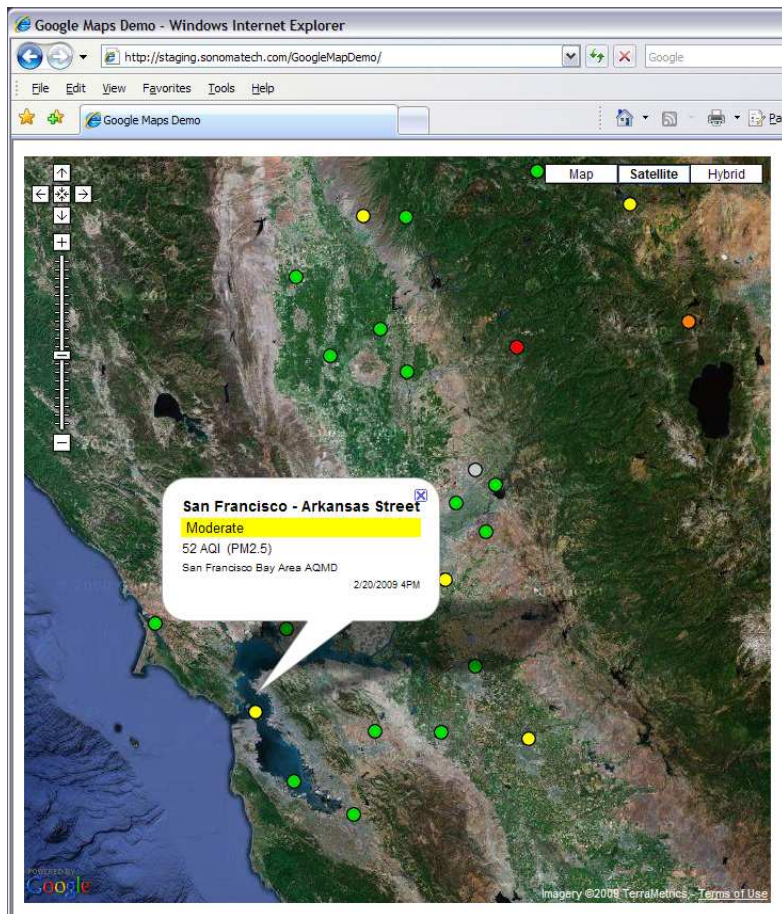
Example - Web Service Data Request



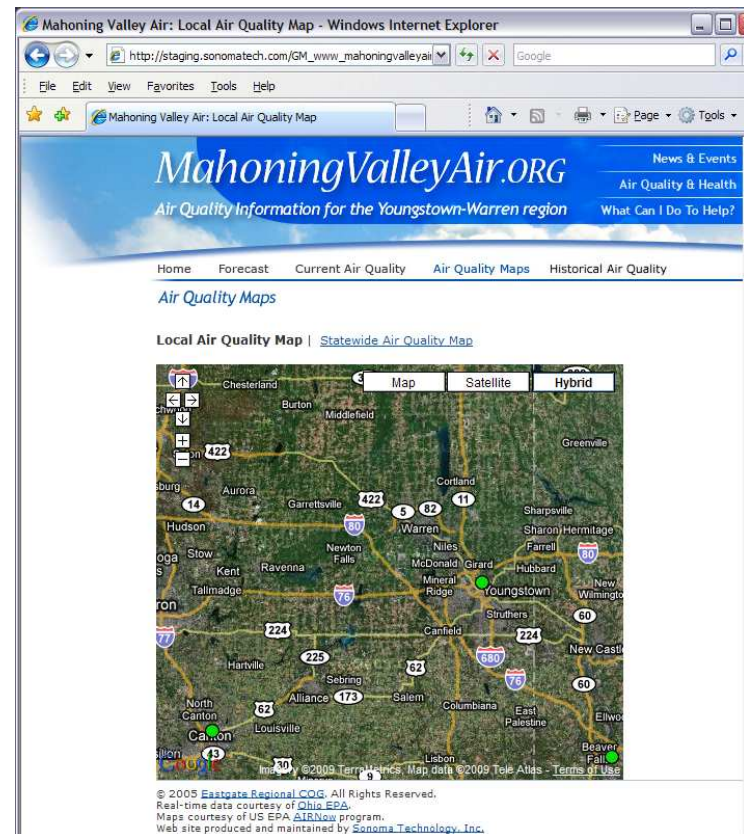
AIRNow-International “GIS Services...”

- **KML files (Google Earth)**
 - **U.S. AIRNow currently has national KML file**
 - Current conditions, today/tomorrow air quality forecast
 - **More KML files and/or web service calls will be available in AIRNow-International system**
 - **Why KML initially versus web mapping service?**
 - open source
 - lots of applications can use KML
 - easy to use KML on your website
 - allows others to view your data
 - **Easy to develop versus building web based GIS system to visualize data**
 - **Shapefiles will be available as well**

Google Map Examples



California



Ohio

AIRNow-International Goals

- **2009**
 - Install AIRNow-International in Shanghai – June
 - Extensive testing
 - Replace existing AIRNow system in United States - September
 - Begin building the 'community' – late 2009
 - Create forum for exchange – collaborative web site
 - Outreach to current partners – share/exchange data
 - Broader GEOSS participation
- **2010**
 - Operation at World Expo in Shanghai
 - Further develop the community
 - Explore interest in future partners
- **The Long Term**
 - Grow the community
 - Deploy system to future partners
 - Promote data sharing worldwide